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A Preliminary List of American Species of Polygonum.

BY JOHN K. SMALL.

The following list and notes are the results of some research on the genus *Polygonum* as occuring in America, and are preliminary to an exhaustive study of the morphology, histology and systematic classification of the genus.

The work was taken up at the suggestion of Dr. Britton and from a short study the suggestion proves to be a seasonable one, for it is time that some light should be thrown on the American species of this group of plants which is in such confusion and which has been so little understood by our best botanists.

The Columbia College Herbarium is especially advantageous for this work, for in it are preserved the collections and types of the late Dr. C. F. Meisner who spent so many years in the study of Polygoneæ. I have also been assisted much by Captain John Donnell Smith, Dr. Geo. Vasey and Dr. B. L. Robinson, all of whom have put their respective collections at my disposal.

The geographical distribution of the species is indicated by the citation of localities and collectors as represented in these four herbaria.

SECTION I.—BISTORTA.

1. POLYGONUM BISTORTOIDES, Pursh, Fl. Am. Sept. 271 (1814).

P. Bistorta, L. var. *oblongifolium*, Meisn., in D.C. Prodr. xiv. 126 (1856).

Colorado: Lake City (Pease); alpine parts of the Rocky Mountains (Parry); Wyoming: Yellowstone Park (C. H. Hall);

Nevada: Parley's Park, 6,000 ft. (Watson, 1068); Arizona: Williams (Rusby, 819); Mogollon Mountains (Mearns, 84); California: Santa Rosa Creek (Bigelow); foothills of the Sierra Nevada (Torrey, 428); Green Horn Mountains 6,000-7,000 ft. (Palmer, 99); Washington: Yakima Region (Tweedy).

Var. LINEARIFOLIUM (S. Wats.)

P. Bistorta, L., var. *linearifolium*, S. Wats. Bot. King's Exp. 317 (1871).

Nevada: E. Humboldt Mountains 9,500 ft. (Watson, 1069); Colorado: Pass Creek, Bridges Pass (Engelmann); Valley of the Lower Platte (Fremont).

Pursh in his Flora of North America published a *Polygonum bistortoides*, giving as its habitat the banks of the Missouri River. Later the plant was found throughout the west, though principally in the mountains. Very few authors accepted Pursh's opinion and name, and in subsequent publications the plant was referred to *P. Bistorta* of Europe. However, this disposal of the case is erroneous. Although the plant has the general appearance of the European species, it has enough constant characters to maintain it as a species as Pursh first ranked it.

Instead of the broadly ovate, cordate radical leaf of *P. Bistorta*, *P. bistortoides* has an oblong leaf, which is generally acuminate at the base. The achene instead of being oblong is narrowly obovoid with a narrower seed.

2. POLYGONUM VIVIPARUM, L. Sp. Pl. 360. (1753).

Iceland: (C. S. Smith); Greenland. Disco Island (Burk); Arctic America: (Parry, Richardson); Vermont: Mt. Mansfield (Pringle); New Hampshire: White Mountians, Alpine Garden (Schrenk), Great Haystack Mountain (Tuckerman); Colorado: Gray's Peak, 12,500 ft. (Letterman); Utah: Bear River Canon, 11,000 ft. (Watson); Oregon and Washington: (Wilkes U. S. Exp. 689); Alaska: St. Paul's Island (White); Juneau (Miss Cooley).

SECTION II.—PERSICARIA.

1. *Ocreæ setose or ciliate.*

3. POLYGONUM PERSICARIA, L. Sp. Pl. 361 (1753).

P. Valdivianum, Phil., according to specimen in Herb. J. Donnell Smith.

Introduced and naturalized in North and South America.

4. POLYGONUM RIVULARE, Phil. Linnæa, xxx. 199 (1859).

Chili: near Santiago, on the Mapocho River (according to Philippi).

This name is a homonym of *P. rivulare*, Roth, Nov. Pl. Sp. 206 (1821), and therefore if Philippi's species proves valid it will have to be changed.

5. POLYGONUM CAREYI, Olney in Proc. Prov. Franklin Soc., i. 29 (1847).

Maine: Orono (Fernald); Massachusetts: Amherst and Plainfield (Hitchcock); Rhode Island: Providence (Olney); New Jersey: Mickleton (Brinton); Pennsylvania: Pocono Mountain (Porter).

6. POLYGONUM PERSICARIOIDES, H.B.K. Nov. Gen. ii. 179 (1817).

South America: Argentine Rep. Mendoza (Gillies); Chili: Valparaiso (U. S. S. P. Ex. Exp)., Desert of Atacama (Morong, 1281); Peru: Lima (Wilkes' Exp.); Bolivia: Cochabamba, 7,000 feet (Bang, 1025); Mexico: Orizaba (Botteri, 584 and 254), San Luis Potosi (Schaffner, 883), Batopilas (Palmer, 137), Guaymas (Palmer, 211), Sonora (Thurber, 357); Texano-Mexican Boundary (Berlandier, 912 and 2342); Mexican Boundary Survey, 1183; New Mexico: San Pedro River (Wright, 1778); Texas: Dallas (Reverchon, 698). Reported from Austin County, Texas, by J. M. Holzinger (Bot. Gaz. xvii. 295).

7. POLYGONUM SEGETUM, H.B.K. Nov. Gen. ii. 177 (1817).

P. segetum, H.B.K., var. *genuinum*, Meisn. in D.C. Prodr. xiv. 121 (1856).

P. Ludovicianum, Meisn., in D.C. Prodr. xiv. 116 (1856).

Louisiana (Teinturier); Cuba (Ramon de la Sagra); South America: Columbia (Funcke and Schlim, 250).

To this species must be referred *P. Ludovicianum*. Meisner's argument for *P. Ludovicianum* will not stand proving, because his principal character breaks down on the type specimen. The plant is identical with *P. segetum*. The only distinctive character given is simply pubescent peduncles and pedicels in place of glandular ones. The diagnosis is incorrect, however, as some glands do exist on the original specimen.

8. POLYGONUM SETACEUM, Baldw. in Ell. Sketch, i. 455 (1817).

North Carolina (Curtis); Florida (Chapman); Louisiana: Feliciana (Carpenter, 1); Alexandria (Hale).

9. POLYGONUM HIRSUTUM, Walt. Fl. Carol. 132 (1788).

P. hirsutum, Walt., var. *dasyphyllum*, Meisn. in D.C. Prodr. xiv. 103 (1856).

Middle Florida (Chapman); Eastern Florida (Leavenworth); Mayport and Jacksonville (Keeler); Georgia to North Carolina (fide Meisner).

Var. GLABRESCENS, Meisn., in D.C. Prodr. xiv. 103 (1856).

Northern Florida at Lake Jacnony (Rugel, 86); lake near Tallahassee (Rugel).

10. POLYGONUUM OPELOUSANUM, Riddell, New Orleans Med. Surg. Journ. viii. 760 (1852), name only.

Plant apparently two to three feet tall, slender, erect and sparingly branched. Leaves narrowly linear-lanceolate to almost linear, two to four inches long, sessile, ciliate on the margins and both sides of the mid-rib, sheaths strigose and long-ciliate; spikes one to one and a half inches in length, rather loosely flowered; bracts densely bearded with bristles; flowers white; calyx five-parted; stamens eight (?); style three-parted, short; achene triquetrous, smooth.

Louisiana: Low prairies near Opelousas (Carpenter, 26).

The species here proposed is most closely related to *P. hydropiperoides*, from which it differs by its smaller size, more slender habit, and the conspicuously setose bracts.

11. POLYGONUM HYDROPIPEROIDES, Michx. Fl. Bor. Am. i. 239 (1803).

P. virgatum, C. and S. Linnæa, iii. 45 (1828).

P. mite, Pers. Syn. i. 440 (1805).

P. australe, Thieb. in Pers. Syn. i. 440 (1805).

Vermont, Charlotte (Pringle); Middlebury (Brainerd); Massachusetts: Essex Co. (Oakes); Rhode Island: Providence (Olney); New York: Bloomingdale (Torrey); Pennsylvania: Easton (Porter); Dauphin and Luzerne Cos. (Small); North Carolina (Hunter); Rowan Co. (Small and Heller); Florida: Mayport and Jacksonville (Keeler); Duval Co. (Curtiss, 2,402 and 2,411 distributed as *P. setaceum*, Baldwin); Lake Jacnony (Rugel, 85); Western Alabama (Rugel); Wilcox Co. (Buckley, 1); Mexico: Orizaba (Müller); Brazil: Serra de Argaos (Gardner, 599).

Var. STRIGOSUM, n. var.

One and a half to two feet tall. Stem clothed with stout, appressed hairs; leaves lanceolate to linear-lanceolate, obtuse, strigillose; sheaths averaging half an inch long, densely strigose and long-ciliate; bracts strigillose and ciliate; flowers whitish.

Indiana: Indianapolis, along the White River (Britton); West Virginia: Preston Co., along the Cheat River (J. D. Smith); Canada: Gatineau River (Macoun).

This well-marked variety we now have from three separate localities. Its almost white flowers, dense strigoseness and heavier habit separate it very clearly from the typical form.

12. POLYGONUM HYDROPIPER, L. Sp. Pl. 361 (1753).

P. Hydropiper, L., var. *vulgare*, Meisn., in D.C. Prodr. xiv. 109 (1856).

Canada to Florida, and westward across the continent. Said to be native northward. Clearly naturalized from Europe in the Eastern and Middle States.

13. POLYGONUM EPILOBIOIDES, Weddell, Ann. Sc. Nat. 3d ser. xiii. 254 (1849).

Brazil: Matto-Grosso, on the Cabacal (according to Weddell).

14. POLYGONUM PARAGUAYENSE, Weddell, Ann. Sc. Nat. 3d ser. xiii. 253 (1849).

Brazil: Matto-Grosso, on the Paraguay River (according to Meisner.)

In every case in which Meisner had occasion to refer to this species, he was inclined to be very skeptical about its validity. It is admitted here in the hope that some certain facts concerning it may be obtained. Dr. Morong did not meet with it in Paraguay.

15. POLYGONUM MINUS, Huds. Fl. Angl. 148 (1762).

Chili (Philippi).

16. POLYGONUM PUNCTATUM, Ell. Sketch, i. 455 (1817).

P. acre, H.B.K. Nov. Gen. ii. 179 (1817), not Lam.

P. hydropiperoides, Pursh, Fl. Amer. Sept. i. 270 (1814), not Michx.

P. hydropiper, Michx. Fl. Bor. Am. i. 238 (1803), not L.

P. acre, H.B.K., var. *confertiflorum*, Meisn. in D.C. Prodr. xiv. 108 (1856).

Common and variable throughout America.

Var. LEPTOSTACHYUM (Meisn.).

P. acre, H.B.K., var. *leptostachyum*, Meisn. in D.C. Prodr. xiv. 108 (1856).

Vermont: Clarendon (Brainerd); New Jersey: Cedar Swamp (Torrey); Pennsylvania: Easton (Porter); Perry Co. (Small); Virginia: Cumberland Gap (Small); Florida (Riehl, 311); Missouri: St. Louis (Engelmann); California: at the Geysers (Torrey); New Granada: La Paila (Holton, 274).

17. POLYGONUM ACUMINATUM, H.B.K., Nov. Gen. ii. 178 (1817).

P. cuspidatum, Willd., ex. Spreng. Syst. ii. 256 (1825).

P. erectum, Vell. Fl. Flum. iv. t. 42 ? (1827).

P. acuminatum, H.B.K., var. *Humboldtii*, Meisn. in Fl. Bras. v. 14, t. 4. f. i. (1855).

West Indies: Cuba (Wright, 2,245); Porto Rico (Sintenis, 1715 and Eggers); Guatemala (Bernoulli, 1065); Surinam (Hostman, 473); Brazil: Minas Geraes (Regnell, 234).

Var. BRACHYSTEMON, Meisn. in D.C. Prodr. xiv. 114 (1856).

Brazil: Pernambuco (Gardner, 1123); Surinam (Hostmann and Keppler, 473).

Var. MICROSTEMON, Meisn. in Mart. Fl. Bras. v. 14, t. 4, f. 2 (1855).

Brazil: Bahia (Martius); Paraguay: Pilcomayo River (Morong, 1060).

Var. WEDDELLII, Meisn. in D.C. Prodr. xiv. 114 (1856).

Southern Brazil, according to Meisner. Guatemala: Coban, 4,300 feet (Tuerkcheim, 517).

18. POLYGONUM HISPIDUM, H.B.K. Nov. Gen. ii. 178 (1817).

Cuba (Wright, 3669); New Granada: La Paila (Holton, 273); Brazil: Pernambuco (Gardner, 1122); Paraguay: Pilcomayo River (Morong, 1026).

2. *Ocreæ eciliate or sometimes slightly ciliolate.*

19. POLYGONUM PENNSYLVANICUM, L. Sp. Pl. 362 (1753).

Canada to Florida, westward to Minnesota and Texas.

20. POLYGONUM MEXICANUM, n. sp.

P. Pennsylvanicum, S. Watson, in Proc. Am. Acad. Arts and Sci. xviii. 147 (1883).

Plant erect, branched, apparently three to four feet high, smooth except the peduncles and pedicels, which are glandular;

leaves linear-lanceolate to narrowly linear, two to four and a half inches long, short-petioled, ciliate-margined, punctate; sheaths truncate, smooth, one inch long; flowers light rose-color, in dense spikes, which are one inch long and erect; calyx five-parted; stamens six to eight; style two-parted, long; achene lenticular, broadly ovate, long-pointed, reticulated and dull.

Mexico: Sonora (E. K. Smith), San Luis Potosi (Schaffner, 882), Jalisco (Pringle, 5186).

This species is most closely related to *P. Pennsylvanicum*, from which, however, it differs in a marked degree in its leaves and flowers, but especially in its broadly ovate and dull achene.

21. POLYGONUM PRINGLEI, n. sp.

Plant mostly erect, branching, two to five feet high, the lower part of the stem inclined to be decumbent and to root at the nodes, glandular throughout, peduncles and pedicels densely glandular. Leaves linear-lanceolate to linear, two to four inches long, subsessile, acuminate, ciliate-margined, minutely punctate; sheaths loose, slightly rough; flowers light pink, in rather loose, thick, cylindrical spikes, which are one inch long, or less, and erect; calyx 5-parted, stamens generally eight; style two or three-parted, rather short; achene lenticular or concave-triquetrous, broadly obovate, short-pointed, smooth and shining.

Mexico: San Luis Potosi, Las Canoas (Pringle, 5183).

This species collected by Mr. Pringle, is a beautiful and peculiar plant. Its stem is very glandular down to the root. The spikes are usually thick and the flowers of a light-rose color. As is the case in a number of other species, *P. Pringlei* has a two or three-parted style, and consequently lenticular and triquetrous achenia. In aspect this species is most nearly related to *P. lapathifolium*.

22. POLYGONUM LAPATHIFOLIUM, L. Sp. Pl. 360 (1753).

P. Pennsylvanicum, Curt. Fl. Lond. t. 73 (1777), not L.

P. nodosum, Pers. Syn. i. 440 (1805).

P. utriculatum, Remy in Gay, Fl. Chili, v. 267 (1849).

This species seems to be introduced throughout North America, Mexico and West Indies. It is remarkably variable. Extreme forms seem to furnish sufficient characters to hold *P. nodosum* separate from *P. lapathifolium*, but the close study of a large number of specimens seems to indicate that none of the characters maintain themselves.

23. POLYGONUM INCARNATUM, Ell. Sketch i. 456 (1817).

P. lapathifolium, L. var. *incarnatum*, S. Wats. in A. Gray, Man. Ed. 6, 440 (1890).

Vermont: Middlebury (Brainerd); New York: Coney Island (Britton); New Jersey: Lake Grinnell (Britton); Pennsylvania: Harrisburg (Small); Illinois: Rockford (Goddard); Kentucky: Lexington (Short); Florida (Chapman); Louisiana: Red River (Hale); Feliciana (Carpenter).

It is better and more consistent to hold *P. incarnatum* as a species than to reduce it to a variety of *P. lapathifolium*. It is a native of North America, and has a well marked and restricted range, whereas *P. lapathifolium* is most likely an introduced species, and has become of a much more cosmopolitan character.

24. POLYGONUM DENSIFLORUM, Meisn. in Mart. Fl. Bras. v, 13 (1855.)

P. acuminatum, Meisn. Mon. 78, in part (1826).

P. densiflorum, Meisn. var. *imberbe*, Meisn. in D.C. Prodr. xiv. 121 (1856).

P. glabrum, Authors, not Willd.

Florida (Chapman 91); Lake Monroe (Rugel, 199); Louisiana: Alexandria (Hale); New Orleans (Riddell; Ingalls); Martinique (Jardin, 302); British Guiana (Jenman, 1628).

Var. CILIOLATUM, Meisn. in D.C. Prodr. xiv. 121 (1856).

British Guiana: Lama (Jenman, 4697); Hooroobea (Jenman, 5114).

Polygonum glabrum, a species related to the foregoing has long been credited to America. This is due to the erroneous determination of certain forms of *P. densiflorum* and *P. lapathifolium*. *P. glabrum* is an East Indian species, and after a careful study and comparison of a large amount of American material with the true eastern *P. glabrum*, all the American specimens refered to *P. glabrum*, prove to be forms of *P. densiflorum* and *P. lapathifolium*.

25. POLYGONUM DIOSPYRIFOLIUM, C. and S. Linnæa, iii. 47 (1828).

Brazil: prov. Rio Janeiro and Minas (according to Meisner).

26. POLYGONUM PERUVIANUM, Meisn. in D.C. Prodr. xiv. 122 (1856).

Peru (Matthews, 3120, according to Meisner).

27. POLYGONUM FERRUGINEUM, Weddell, Ann. Sc. Nat. 3d ser. xiii. 252 (1849).

P. spectabile, Mart. ex Meisn. Fl. Bras. v. 13, t. 3 (1855).

P. gummiferum, Weddell, loc. cit. (1849) ?

P. glabrum, C. and S. Linnæa, iii. 46 (1828)?.

Eastern Brazil: Pernambuco (Gardner, 1124), and Havana, Cuba (according to Meisner).

Var. INCANUM (Meisn.)

P. spectabile, Mart. var. *incanum*, Meisn., in Mart. Fl. Bras. v. 13 (1855).

Northern Brazil: Para (Spruce, 640).

28. POLYGONUM AMPHIBIUM, L. Sp. Pl. 361 (1753).

P. coccineum, Muhl. Cat. 40 (1813).

Ontario: Wingham (Morton); Quebec: Tadousac (Northrop); New Hampshire: Squam Lake (Schrenk); Mass.: Ipswich (Oakes); New York: Onondaga Lake (Underwood); Rockland Lake (Morong); Eagle Lake (Miss E. G. Knight); New Jersey: Morris Pond (Britton); Kentucky (Short); Rocky Mountains: Pass Creek to Bridges Pass (Englemann); Nevada: Ruby Valley (Watson); California: San Jacinto Mountains (Parish).

29. POLYGONUM EMERSUM (Michx.) Britton, Trans. N.Y. Acad. Sci. viii. 73 (1889).

P. amphibium, L. var. *emersum*, Michx. Fl. Bor. Am. 1. 240 (1803).

P. amphibium, L. var. *Muhlenbergii*, Meisn. in D.C. Prodr. xiv. 116 (1856).

P. Muhlenbergii, S. Wats. Proc. Amer. Acad. xiv. 295 (1879).

New York: Yates County (Gray); Staten Island: Garretsons (Britton); New Jersey: Morris Co., Budd's Lake (Porter); Pennsylvania: Lehigh County (Moser); Luzerne County, Long Pond (Small and Heller); Dauphin County along Susquehanna river (Small); Virginia: Giles County (Britton); Michigan: Fort Gratiot (Pitcher); Minnesota: Fort Snelling (Mearns); Nebraska: Scott's Bluff County (Rydberg); Louisiana: Alexandria (Hale); Texas: Tom Greene County (Tweedy); New Mexico (Wright, 1779); Arizona: Mogollon Mountains (Mearns); Colorado: Uncompahgre Mountain (Flint); California: Sacramento Valley (U. S. S. Pac. Ex. Exp. 124), De Fuca (Scouler); Mexico: Near City of Mexico (Gregg, 126).

30. POLYGONUM HARTWRIGHTII, A. Gray, Proc. Am. Acad. viii. 294 (1870).

New York: Yates County (Hart Wright), Erie County (Britton); New York County (Bicknell); New Jersey: Sussex County (Porter and Britton); Michigan: Keweenaw County (Farwell, 351), Fort Gratiot (Pitcher); Nebraska: Cherry County (Bates); Nevada: Lake Washoe (Torrey, 427); Oregon: Nasqually (U. S. S. Pac. Ex. Exp. 124).

SECTION III.—AMBLYGONON.

31. POLYGONUM ORIENTALE, L. Sp. Pl. 362 (1753).

Introduced into waste grounds from India in many localities throughout the United States.

SECTION IV.—ACONOGONON.

32. POLYGONUM ALPINUM, All. Fl. Pedem. ii. 206, t. 68 f. i. (1785).

P. polymorphum, Ledeb. var *alpinum*, Ledeb. Fl. Ross. iii. 524 (1849).

Nevada: East Humboldt Mountains, 8,000 ft. (Watson, 1071).

Var. FOLIOSUM (Keller).

P. polymorphum, Ledeb. var *foliosum*, Keller, Bull. Soc. Bot. Belg. xxx. 49 (1891).

Washington: Mount Adams (Howell); Mount Paddo (Adams) 6,000-7,000 ft. (Suksdorf).

Var. LAPATHIFOLIUM, C. and S. Linnæa, iii. 38 (1828).

P. polymorphum, Ledeb. var. *lapathifolium*, Ledeb. Fl Ross. iii. 525 (1849).

Alaska: Kuskokoin Valley (Weinmann), St. Michaels (Muir, 180), Cape Blossom (McLenigan), Kotzebue Sound (Beechey), Youkon River (Dall).

33. POLYGONUM PHYTOLACCÆFOLIUM, Meisn. n. sp.

Plant erect, sparingly branched, smooth. Leaves ovate to ovate-lanceolate, obtuse or slightly cordate at base, acute at the apex, petioled, two to six inches long, ciliate-margined; sheaths semicylindrical, slightly pubescent, long; inflorescence paniculately racemose; flowers in rather loose, lax spikes which are about one inch long; calyx five-parted; stamens eight; style three-parted, very short; achene triquetrous, oblong, chestnut-brown, smooth.

California: (Cuming 229, type; Bridges 290), Donner Pass (Torrey 425); Coast of Mantchuria (Wilford).

The species here proposed has been confounded with *P. alpinum*, to which it is related but is plainly distinct. In 1867 it was sent to Meisner by Lenormand. Meisner saw directly that it was distinct from related species and left the following record on the label "*Polygonum phytolaceæfolium* nob. (25./6/67)" but so far as I can find he never published it, as was the case with a number of his other manuscript names.

34. POLYGONUM DAVISIÆ, Brewer, in A. Gray, Proc. Am. Acad· viii. 399 (1872).

California; Alameda Country (Miss Davis), Hermit Valley (Brewer, 2105), Placer County, on Truckee River (Sonne); Washington: Yakima Region, 6,000 ft. (Tweedy), Mt. Hood, 6,000-8,000 ft. (Howell).

The type of this peculiar and interesting *Polygonum* is glabrous, but densely tomentose specimens have been collected on some of the higher mountains along the Pacific coast. If sufficient material can be secured which will exhibit enough and constant characters there may be reason for describing these as a variety of the above species.

SECTION V.—AVICULARIA.

1. *Plants prostrate.*

35. POLYGONUM AVICULARE, L. Sp. Pl. 362 (1753).

Thoughout North America and at various localities in Mexico and South America.

36. POLYGONUM LITTORALE, Link, in Schrad. Journ. i. 54 (1799).

P. salsuginosum, Wallr. Linnæa, xiv. 568 (1840).

P. aviculare, L., var. *littorale*, Mert. & Koch, in D. Fl. iii. 59 1831).

P. crassinerve, Cesati, Stirp. Ital. fas. ii. (1840).

Canada: shore of Thunder Bay (Britton); Pennsylvania: Lycoming Co. (Small & Heller); Illinois: Sandy Plains (Short); Missouri: St. Louis Co. (Engelmann).

Var. BUXIFOLIUM, (Nutt.), Meisn. in D.C. Prodr. xiv. 98 (1856).

P. aviculare, L., var. *buxifolium*, Ledeb. Fl. Ross. iii. 532 (1847-49).

P. buxifolium, Nutt. in Bongard, Veg. Ins. Sitcha, 161 (1831).

P. aviculare, L., var. *latifolium*, Michx. Fl. Bor. Am. i. 237 (1803), fide Bongard.

Island of Sitcha.

37. POLYGONUM BELLARDI, All. Fl. Pedem. ii. 205, t. 90, f. 2 (1785).

Introduced into the agricultural grounds at Washington, D. C. (Vasey).

38. POLYGONUM MARITIMUM, L. Sp. Pl. 361 (1753).

P. glaucum, Nutt. Gen. i. 254 (1818).

Along the sea coast of Eastern North America. Maine: Mt. Desert (Miss Knight); Massachusetts: Nantucket (Mrs. Hubert), Martha's Vineyard (C. C. Curtiss), Bristol Co. (T. A. Greene); New York: Long Island (Torrey), Hog Island (E. H. Day); New Jersey: (A. Gray), Anglesea and Atlantic City (Brinton); Maryland; Worcester Co. (Rusby); Southern Florida: (Chapman).

39. POLYGONUM RAYI, Babingt. Man. Brit. Bot. 2nd ed. 275.

Naturalized on the Atlantic coast. New York: on Harlem River (Bicknell); Virginia: Portsmouth (Rugel); Norfolk (Britton).

This species of *Polygonum* has long been in the country, naturalized at the above cited localities. It was first collected at Portsmouth, Va., by Rugel. This specimen was deposited in the Herbarium of the British Museum. Later it was transferred to the Herbarium of the Geological and Natural History Survey of Canada, whence it found its way to the Columbia College Herbarium.

40. POLYGONUM LACERUM, H.B.K. Nov. Gen. ii. 179 (1817).

Mountains of Peru (according to Humboldt); Bolivia: La Paz, 10,000 ft. (Bang, 130), Cochabamba, 7,000 ft. (Bang, 1057); Western Texas: Maronllas Creek (Havard, 112).

According to a note in DeCandolle's Prodromus, Meisner seems to doubt the validity of this species, saying that fragments of Humboldt's specimens in Kunth's Herbarium are hardly sufficient to distinguish it from related plants. A very short and indefinite description is given, but the specimens of Mr. Bang agree reasonably well with it and are from the same region in which *P. lacerum* is said to occur.

As I have not seen Humboldt's specimen, I prefer to refer Mr. Bang's to *P. lacerum* rather than to describe them as new. In Dr. Rusby's distribution of Mr. Bang's collections this plant was referred to *P. striatum* which proves to be incorrect. Havard's 112 from Western Texas belongs here, and interesting as this may be, it is not surprising, for, as the flora of the Andes of South America is gradually brought to light, the relation between it and that of the southwestern United States is more clearly seen.

41. POLYGONUM CHILENSE, C. Koch, Linnæa, xxii. 206 (1849).

P. maritimum, C. and S. Linnæa, iii. 51 (1828), not L.

P. Sanguinaria, Remy, in Gay Fl. de Chili, v. 270 (1876).

Southern South America: Coast of Chili and Strait of Magellan: Sandy Point (Lechler, 1128).

42. POLYGONUM BOWENCAMPI, Phil. Linnæa, xxxiii. 224 (1864).

Chili: Santiago, in the Andes (Bowencamp, according to Philippi).

43. POLYGONUM STRIATUM, C. Koch, Linnæa, xxii. 206 (1849).

P. maritimum, Remy, in Gay Fl. de Chili, v. 269 (1845), not L.

South America.—Chili: Corral, Province of Valdivia (Lechler, 712); Ancud (Philippi).

44. POLYGONUM SHASTENSE, Brewer, in A. Gray, Proc. Am. Acad. viii. 400 (1872).

In the Sierra Nevada Mountains, California: Mt. Shasta, 8,000-9,000 feet (Brewer, 1382); Lassens Peak, 9,000-10,000 feet Brewer, 2179); near Donner Pass (Torrey, 424).)

45. POLYGONUM PARONYCHIA, C. and S. Linnæa, iii. 51 (1828).

Puget Sound and San Francisco (U. S. S. Pac. Expl. Ex., 1454); California (Eschscholtz); Monterey (Rich); San Francisco (Torrey, 429); Oregon (Pringle); British Columbia: Vancouver Island (Macoun).

46. POLYGONUM FLAGELLIFORME, Weddell, in Ann. Sc. Nat. 3d ser. xiii. 254 (1849).

Southern Brazil: Province of Rio Grande.

2. *Plants erect.*

47. POLYGONUM ERECTUM, L. Sp. Pl. 363 (1753).

Massachusetts: Cambridge (Morong); South Boston (Faxon); New York: Staten Island (Britton); Pennsylvania: Lancaster Co. (Porter), Lycoming Co. (Small and Heller); Virginia: Norfolk (Morong); Smyth and Pulaski Cos. (Small); Tennessee: Cumberland Gap (Small); Southern States (Chapman); Illinois: Oquawka (Patterson); Nevada: Austin, 6,500 feet (Watson, 1056).

48. POLYGONUM RAMOSISSIMUM, Michx. Fl. Bor. Am. i. 237 (1803).

Massachusetts: Milton (Deane); New York: Staten Island (Britton); along Harlem River (Bicknell); New Jersey: Atlantic City (Brinton); Nebraska: Valentine (Bates); Long Pine (Conkling); Minnesota: Fort Snelling (Mearns, 583); Indian Territory (Palmer, 287); New Mexico (Wright, 1775); Utah: Salt Lake City, 4,300 feet (Jones, 1090); Wyoming: Yellowstone Park (C. H. Hall); Nevada: Truckee Valley (Bailey, 1057); Saskatchawan (Bourgeau).

49. POLYGONUM BERTEROI, Phil. Linnæa, xxix. 38 (1857).

Chili: Near Rancagua (Bertero, according to Philippi).

50. POLYGONUM BRASILIENSE, C. Koch, Linnæa, xxii. 206 (1849).

P. aviculare, L., var. *Montevidense*, C. and S. Linnæa, iii. 50 (1828).

Southern South America.

Not having seen this species, I prefer for the present to retain *Brasiliense* as the specific name, which, however, should be changed, if *P. Brasiliense* and *P. aviculare*, var. *Montevidense* are identical.

51. POLYGONUM CAMPORUM, Meisn. in Mart. Fl. Bras. v. 21 (1855).

P. camporum, Meisn., var. *boreale*, Meisn., in Mart. Fl. Bras. v. 22 (1855).

Texas (Drummond, 254); on the Sea Willow (Bigelow, Mex. Bound. Surv.); Maverlick Co., mouth of the Las Moras (Schott); Bejar (Berlandier, 1770); Western Texas (Wright, 614); Nebraska: Lancaster Co. (Webber).

Var. AUSTRALE, Meisn. in Mart. Fl. Bras. v. 22 (1855).

In Buenos Aires (according to Meisner).

52. POLYGONUM STYPTICUM, C. and S. Linnæa, iii. 53 (1828).

Southern Brazil: On the Rio Negro (Sellow); Northern Patagonia: Rio Negro (Wilkes S. Pacific Expl. Ex.).

53. POLYGONUM TENUE, Michx. Fl. Bor. Am. i. 238 (1803).

P. linifolium, Muhl. Cat. 40 (1813).

New Hampshire: Red Hill (Schrenk); Connecticut: New Haven Co. (Eaton); Pennsylvania: Lehigh Co. (Moser); Delaware Co. (Brinton); Montour Co. (Heller); Lancaster and Lebanon Cos. (Small); Maryland: Worcester Co. (Rusby); North Carolina: Smith Mountain (Miss Reynolds); Michigan: St. Clair Co. (Pitcher); Iowa: Winneshiek Co. (Holway); Illinois: Henderson Co. (Patterson); Kentucky (Short); Arkansas (Leavenworth); Red River (Pitcher).

54. POLYGONUM DOUGLASII, Greene, in Bull. Cal Acad. i. 125 (1885).

P. coarctatum, Dougl., var. *majus*, Meisn. in D.C., Prodr. xiv. 101 (1856) in part.

Canada: Lake Muskoka (Britton); Vermont: Snake Mountain (Brainerd); Nebraska: Banner Co. (Rydberg, 346); Indian Territory: On the False Washita (Palmer, 288); New Mexico: Copper Mines (Bigelow); Colorado: Eagle River (Coulter); Utah: Wahsatch Mountains, 7,000 feet (Watson, 1059); Nevada: Austin, 6,500 feet (Watson, 1059); Washoe Valley (Stretch, 182); California: Yosemite Valley and Mountains (Torrey, 423); Oregon (Hall, 450); on the Columbia River (Douglas); Washington: Falcon Valley (Suksdorf, 211); Vancouver Island: Departure Bay (Macoun).

For some years there has been dissatisfaction among certain botanists as to the disposal of a *Polygonum*, found in the northeastern United States and Canada, which resembles *P. tenue* to some extent. The whole trouble proves to be caused by trying to make two separate and distinct species one. The plant turns out to be *P. Douglassii*, which ranges across the northern part of the continent from the Pacific to the Atlantic Ocean. *P. Douglassii* can be distinguished from its relative *P. tenue* at a glance, and is beautifully distinct, as Prof. Greene has pointed out, by its one-ribbed leaf in place of the three-ribbed leaf of *P. tenue*, and the much longer, narrower and pediceled, drooping fruit, instead of the short, thick, sessile, erect fruit of that plant.

Var. LATIFOLIUM (Engelm.) Greene, Bull. Cal. Acad. i. 125 (1885).

P. tenue, Michx. var. *latifolium*, Engelm., in A. Gray, Proc. Phila. Acad. 1863, 75.

Colorado: Gray's Peak (Patterson, 130); Arizona: Mokiah Pass (Palmer, 420); California: Tulare Co. (Palmer, 177); Oregon: Siskiyou Mountains (Howell).

55. POLYGONUM MICROSPERMUM (Engelm).

P. tenue, Michx. var. *microspermum*, Engelm., in A. Gray, Proc. Phila. Acad. 1863, 75.

P. Engelmanni, Greene, Bull. Cal. Acad. i. 126 (1885).

Colorado: Jefferson Co., Bergen Park (Greene).

56. POLYGONUM AUSTINÆ, Greene, Bull. Cal. Acad. i. 212 (1885).

California: Modoc Co. (Mrs. Austin); Wyoming, Yellowstone Park (Tweedy).

57. POLYGONUM SPERGULARIÆFORME, Meisn.

P. coarctatum, Dougl. ex. Meisn. in D.C. Prodr. xiv. 101 (1856), not Meisn.

Western North America: Straight of De Fuca (Scouler), California (Fremont), Borax Lake (Torrey, 426); Oregon and Northern California (U. S. S. Pac. Exploring Expedition, 1628).

The specific name *coarctatum* was first published in Meisner's Mon. Gen. Polyg., in 1826, being there applied to a Siberian plant. The name, therefore, cannot be used for the American species. Meisner left the manuscript name *spergulariæforme* on one of his labels, which is here taken up.

58. POLYGONUM MINIMUM, S. Watson, Bot. King, Exp. 315 (1871).

P. Torreyi, S. Watson, Am. Naturalist, vii. 664 (1873).

Utah, near River Canon, 10,500 feet (Watson, 1058), Wahsatch Mountains, 8,000 feet (Jones, (1221); Idaho (Kootani Co. (Heller), Washington, Yakina region (Tweedy).

59. POLYGONUM KELLOGGII, Greene, Fl. Fran. 134 (1891).

California: Mountains near Donner Lake (according to Greene).

60. POLYGONUM INTERMEDIUM, Nutt. in S. Watson, Proc. Am. Acad. xvii. 378 (1882).

Oregon; Bridal Veil, Multnomah Co. (Suksdorf); Bluffs of the Columbia River (Pringle); Cape Horne (Howell); Vancouver Island (Macoun).

61. POLYGONUM IMBRICATUM, Nutt. in S. Watson, Am. Nat. vii. 665 (1873).

California: Donner Lake (Torrey, 426 a), Green Horn mountains, Kern Co. (Palmer, 64); Washington: Falcon Valley and Skamania Co. (Suksdorf), Yellowstone Park, Mt. Evarts, 8,000 feet (Tweedy); Utah: Alta Wahsatch Mountains, 10,000 feet (Jones, 1105), Parley's Park, 6,500 feet (Watson, 1062 and 1063); Nevada: East Humboldt mountains, 9,500 feet (Watson, 1062 and 1063).

62. POLYGONUM POLYGALOIDES, Meisn. in D.C., Prodr. xiv. 101 (1856).

Oregon and Washington (U. S. S. Pac. Ex. Expedition, 533 bis), also on the Koorkoorhea river: Spokane Co. (Susksdorf); Montana; Beaver Head Co. (Tweedy, 104).

63. POLYGONUM BOLANDERI, Brewer, in A. Gray, Proc. Am. Acad. viii. 400 (1872).

California: Napa Valley (Bolander, 18; Brewer, 854, Pringle), and in the Valley of the Sacramento.

SECTION VI. DURAVIA.

64. POLYGONUM CALIFORNICUM, Meisn. in D.C. Prodr. xiv. 100 (1856).

California (Hartweg, 1944), Sacramento river (Nevius), Donner Lake, 7,500 feet (Greene 439), Milton (Parry 247), Napa (Bolander, 2643); Oregon: Grant's Pass (Howell).

65. POLYGONUM GREENEI, S. Watson, Proc. Am. Acad. xvi. 295 (1879).

California : Calistoga (Greene), Shasta Co., Redding (Greene).

66. POLYGONUM BIDWELLIÆ, S. Watson, Proc. Am. Acad. xiv. 294 (1879).

California: near Chico (Mrs. Bidwell).

67. POLYGONUM PARRYI, Greene, Bull. Torr. Club, viii. 99 (1881).

Oregon: Waldo (Howell), Grant's Pass (Howell, 254); California: Yosemite Valley (Parry); Washington: Falcon Valley (Suksdorf, 609).

SECTION VII. TINIARIA.

68. POLYGONUM CONVOLVULUS, L. Sp. Pl. 364 (1753).

Vermont: Charlotte (Pringle); Maine: Mt. Desert Island (White); New York: Alder Lake, (Rusby); Pennsylvania: Bucks County (Ruth); Virginia: Natural Bridge (Britton), White Rock mountain and Cumberland Gap (Small); Florida (Chapman); West Virginia: Banks of the Ohio (Millspaugh); Nebraska : Fort Niobrara (Wilcox), Kimball County (Rydberg, 350); Utah: Utah Valley, 5,000 feet (Watson, 1070).

69. POLYGONUM DUMETORUM, L. Sp. Pl. Ed. 2, 522 (1762).

There are specimens of this species identical with the European plant, in the Harvard and Columbia College Herbaria, collected by Englemann on the prairies of Illinois and about St. Louis, Missouri. Whether the plant is introduced from Europe or native, it is impossible to tell at the present time.

70. POLYGONUM SCANDENS, L. Sp. Pl. 364 (1753).

P. dumetorum, L. var. *scandens*, A. Gray, Man. Ed. 5, 41 (1867).

Massachusetts: Ipswich (Morong); New York: Erwin (Hart Wright), New York City (Torrey), Staten Island (Britton); Pennsylvania : Bethlehem (Moser), Harrisburg (Small); Florida (Chapman); West Virginia : Monongalia County (Millspaugh); Louisiana: New Orleans (Ingalls); Indian Territory, on the False Washita (Palmer, 289); Texas, on the Liana (Lindheimer, 685); Nebraska : Lincoln (Webber), Deuel County (Rydberg, 351).

Although this species closely resembles *P. dumetorum* in aspect, it has characters which are constant and sufficient to hold it separate from that plant. The achene is much larger, the wings of the calyx much broader and more emarginate at the apex; the pedicels are also longer than in *P. dumetorum.*

71. POLYGONUM CRISTATUM, Engelm and Gray, Pl. Lindh. Boston Journ. Nat. Hist. v. 259 (1847).

Texas (Lindheimer, 296); South Carolina: Santee Canal (Ravenel).

The range of this species of which so little is known, has been extended far to the east by specimens of Ravenel, collected on the Santee Canal, S. C., which have been preserved for many years in the Gray Herbarium, under the name of *P. scandens.* There may be much more of it scattered through the South, and probably it has been overlooked on account of its close relationship to that species.

72. POLYGONUM CILINODE, Michx. Fl. Bor. Am. i. 241 (1803).

Canada, North Bay (Britton); Wisconsin: Milton (Sandberg); Massachusetts: Williamstown (Torrey); New York: Alder Lake (Rusby), Onteora Mountains (Miss Vail); Pennsylvania: Pocono Mountains (Wolle), Perry and York Counties (Small).

73. POLYGONUM CUSPIDATUM, Sieb. and Zucc. Fl. Japon. Fam. Nat. ii. 84 (1846).

Naturalized near Philadelphia, Pennsylvania (C. E. Smith); also on the banks of the Mohawk River below the Aqueduct, Schnectady N. Y. (Wibbe).

SECTION VIII.—ECHINOCAULON.

74. POLYGONUM SAGITTATUM, L. Sp. Pl. 363 (1753)

Massachusetts: Ipswich (Morong); New York: West Point Torrey); Minnesota: Hennepin Co. (Sandberg); Ohio: Canton (Riehl); Nebraska: Long Pine (Swezey, 113); Pennsylvania: Harrisburg (Small), Easton (Porter); Virginia: Iron Mountains (Small); West Virginia: Monongalia Co. (Millspaugh, 793); Florida: (Chapman).

Var. PUBESCENS, Keller, Bull. Soc. Bot. Belg. xxx. 45 (1891).

New York, wet grounds near Troy (A. Puissant according to Keller.)

75. POLYGONUM MEISNERIANUM, C. &. S., Linnæa, iii. 40 (1828).

P. Chamissoanum, Weddell, in Ann. Sc. Nat. 3d ser. xiii. 254 (1849).

Brazil: Caldas (Regnell, ii. 233).

Var. BEYRICHIANUM (C & S.) Meisn., in Mart. Fl. Bras. v. 19, t. 1, f. 2 (1855).

P. Beyrichianum, C. & S. Linnæa, iii. 42 (1828).

P. multangulare, Hook. & Arn. in Comp. Bot. Mag. ii. 62 (1836).

P. Türckheimii, Vatke., in Herb. of J. Donnell Smith.

Southern Brazil: Soracoba (Warming, 142), Caldas (Regnell, iii. 1027); Guatemala: Coban (Türckheim, 243); Cuba: (Wright, 2254); United States: Louisiana, Madisonville (Riddell), Bookfalaya River (Langlois).

76. POLYGONUM RUBRICAULE, Cham. Linnæa, viii. 130 (1833).

Brazil: (Sellow) according to Chamisso.

77. POLYGONUM STELLIGERUM, Cham. Linnæa, viii. 131 (1833).

Brazil: (Sellow) according to Chamisso.

78. POLYGONUM ARIFOLIUM, L. Sp. Pl. 364 (1753).

Massachusetts: Hingham (Morong); Vermont: Bristol (Pringle); New York: (Torrey); New Jersey: (Eaton); Pennsylvania: Harrisburg (Small); Delaware: Centreville (Commons); Southern States (Chapman).

SECTION IX.—TOVARIA.

79. POLYGONUM VIRGINIANUM, L. Sp. Pl. 360 (1753).

P. muticum, Moench. Suppl. 266 (1802).

Persicaria Virginiana, Gærtn. Fruct. et Sem. ii. 180, t. 119 (1802).

New York: Bloomingdale (Torrey); Pennsylvania: Easton (Porter); South Carolina: Bluffton (Mellichamp); Georgia: (Chapman); Kentucky: (Short); Missouri: St. Louis (Fritchey); Nebraska: Lincoln (Webber); Indian Territory: on the False Washita (Palmer); Red River (Pitcher).

Polygonum fimbriatum, Elliott is excluded from this list as its distinctive characters seem to be sufficient for holding it in the genus founded for it by Dr. Gray, namely *Thysanella*.